REMARKS/ARGUMENTS

Reconsideration of the application in view of the above amendments and following remarks is requested. Claims 1-3, 5-8, and 18 are now in the case. Claims 1, 5, and 18 have been amended. Claim 4 has been cancelled. Claims 9-17 and 19 have been withdrawn. Applicants reserve the right to prosecute claims to canceled subject matter in one or more continuing applications.

Claim 1 has been amended and claim 4 has been canceled in view of the restriction requirement. Claim 5 has been amended to corrrect obvious typographical errors. Claim 18 has been rewritten as an independent claim. Now new matter has been added.

The Office has objected to the disclosure because "the specification does not contain a separate section pointing out the Brief Description of the Drawings in accordance with 37 CFR § 1.74." The Office has acknowledged, however, that the specification does include a description of figures 1-3 on pages 5 and 6.

Applicants respectfully traverse this objection. 37 CFR § 1.74 recites, "When there are drawings, there shall be a brief description of the several views of the drawings . . ." In contrast, 37 CFR § 1.77 is a guideline, not a requirement ("The specification should include the following sections in order . . . The text of the specification section . . . should be preceded by a section heading in uppercase and without underlining or bold type." (Emphasis added.)). See also, MPEP 608.01(a) ("The following order of arrangement of specification elements is preferable . . ."). Thus, Rule 77 provides guidelines, not a mandatory format. Rule 74 provides the content requirement, with which Applicants' specification complies. Thus, no amendment of the specification is believed to be necessary in this regard.

The specification has been amended to remove embedded hyperlinks at pages 12, 40, and 42.

The objections to claims 4, 5, and 18 are believed to have been overcome by the above claim amendments.

Claims 1-8 and 18 stand rejected under 35 U.S.C. § 101. The Office believes that the claimed invention is not supported by either a specific and substantial asserted utility or a well-established utility. The Office has asserted at page 4 of the Office Action, "Cell-specific expression and drug delivery, as taught on page 36, would not be specific to the claimed polypeptide, nor does the specification teach any particular specificity." Based, *inter alia*, on this assertion, the Office has concluded at page 5, "Thus, further research is required to identify a disease . . . for which its presence would be diagnostic."

This rejection is respectfully traversed. Contrary to the Office's assertion, Applicants have disclosed tissue-specific expression of the claimed polypeptides and have identified a disease for which their presence would be diagnostic. Table 4 at page 47 of the specification discloses that zcub5 is expressed in kidney cancer and lung cancer, but not in the corresponding normal tissues. Zcub5 expression is therefore a specific marker of kidney cancer and lung cancer, and would be recognized by one of ordinary skill in the art to have a specific and substantial utility as a disease marker. Thus, use of zcub5 as a target for cell labeling, in vivo imaging, or diagnosis as disclosed on page 36 is a specific use. In view of the data disclosed in Table 4, the Office's conclusion that "further research is required to identify a disease" is clearly erroneous, and the rejection cannot stand.

The cited references (Lee et al., Takahashi et al., and Gluzman-Poltorak et al.) are not believed to be relevant to the determination of patentability in view of the diagnostic utility disclosed by applicants. However, Applicants note that Gluzman-Poltorak et al. disclose that "unusually large amounts" of certain VEGF receptors are expressed in several types of prostate and breast cancer cell lines (page 18041, left column).

Reconsideration and withdrawal of the rejection under § 101 are requested.

Claims 1-8 and 18 stand rejected under 35 U.S.C. § 112, first paragraph. According to the Office, "[S]ince the claimed invention is not supported by either a specific or substantial asserted utility or a well-established utility for the reasons set forth above, one skilled in the art would not know how to use the invention."

Applicants respectfully traverse this rejection. As discussed above, a specific and substantial utility is disclosed in the specification, that is, the use of zcub5 as a marker of kidney cancer and lung cancer. Furthermore, the specification provides substantial disclosure regarding this use.

Zcub5 is disclosed as a cell-surface protein. See, for example, Applicants' specification at page 10, line 31 through page 11, line 1. As a cell-surface molecule, zcub5 provides a means of identifying, labeling, and isolating selected cell types, and provides a target for cell-specific delivery of diagnostic and therapeutic agents. Those "selected cell types" include kidney cancer cells and lung cancer cells as disclosed in Table 4 on page 47. As disclosed at page 36, anti-zcub5 antibodies can be labeled and used for *in vivo* or *in vitro* labeling of cells, for *in vivo* imaging, and for other diagnostic procedures. Further guidance on the diagnositic use of anti-zcub5 antibodies is provided at pages 39-40 of the specification.

Production of antibodies to zcub5, including labeled antibodies, is disclosed in the specification at pages 12-13 and 38-40. Immunization of animals and recovery of antibodies is routine in the art; multiple protocols are known and have been published in laboratory manuals dating from at least as early as 1982 (specification at page 38, lines 35-37).

The Office has further asserted that "the specification does not reasonably provide enablement for biologically active variants of SEQ ID NO: 2 comprising the various regions disclosed in the claims." Applicants' claims recite specific regions of SEQ ID NO:2, including residues 41-150, 41-412, 41-452, 35-150, 35-412, and 35-452. These recited regions are within the extracellular portion of the molecule. As such, they would be expected to be useful as immunogens for the preparation of antibodies useful in labeling cells expressing zcub5. Multiple segments within the extracellular portion of zcub5 are expected to be immunogenic. See, specification at page 13, lines 3-12.

Applicants respectfully submit that the discussion of structure/function relationships, amino acid changes, and three-dimensional configuration at pages 7-8 of the Office Action is irrelevant to the disclosed diagnostic utility. The claimed amino acid segments are contained within the extracellular region of zcub5 and would be expected by one of ordinary skill in the art to be useful as immunogens for raising antibodies against the protein. Three-dimensional configuration is not always important, and may be undesirable, for an immunogen. As disclosed at page 13 of the specification, antibodies that recognize short, linear epitopes (i.e., epitopes that are not determined by three-dimensional configuration) are particularly useful in the analysis of fixed cells or tissue samples.

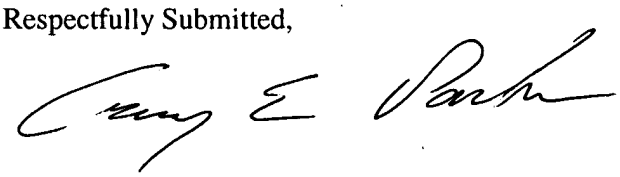
Reconsideration and withdrawal of the rejection are requested.

Claims 1-8 and 18 also stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. In the opinion of the Office, the claims are drawn to polypeptides that "vary substantially in length and composition" and no "common characteristics linking these different polypeptides" have been disclosed.

Applicants respectfully traverse this rejection. As discussed above, the claimed polypeptides share the common feature of comprising epitopes within the extracellular region of the zcub5 protein. This feature imparts a common function, that of immunogens useful in the preparation of antibodies to the extracellular region of zcub5. Such antibodies are useful, for example, as diagnostic agents for kidney cancer or lung cancer. Reconsideration and withdrawal of the rejection are requested.

Applicants believe that each rejection and objection has been addressed and overcome. Reconsideration of the application and its allowance are requested. If for any reason the Examiner feels that a telephone conference would expedite prosecution of the application, the Examiner is invited to telephone the undersigned at (206) 442-6673.

Respectfully Submitted,



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Enclosures:

Amendment Fee Transmittal (in duplicate)
Request for Extension of Time
Postcard

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